

## **High Energy Astrophysics of Binary star systems (PHY667A)**

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### **Topics:**

- Introduction to the high energy astrophysics
- Stellar evolution
- Compact stars: Black holes, neutron stars and white dwarfs
- General relativistic effects
- Interaction of photons with matter
- Interaction of charged particles with matter
- Binary stars
- Mass transfer in binary stars
- Formation of accretion disk
- x-ray binaries
- Detection of x-rays and gamma rays
- space x-ray detectors
- Challenges faced in space based detectors
- ASTROSAT
- observations and study of x-ray binaries
- survey of x-ray binaries

### **Reference Books:**

- Accretion Power in Astrophysics, J. Frank, A. King and D. Raine.
- High Energy Astrophysics, M. S. Longair.
- Radiation Detection and Measurement, G. F. Knoll

**Evaluation:**

- Mid Sem exam 80 marks
- End Sem exam 120 marks
- Assignments 60 marks